STONE PINE & PINE NUTS PRODUCTION IN LEBANON

Patricia R. Sfeir
Agriculture & Environment Manager

www.ymca-leb.org.lb
patricia.sfeir@ymca-leb.org.lb

OUTLINE

- Stone Pine Forests in Lebanon
- Pine nut Production in Lebanon
- The Post Harvest process
- The silvicultural practices
- Potential Threats
- Some Production Numbers….
- Culinary use of Pine nuts

STONE PINE FORESTS IN LEBANON

- *Pinus pinea* a native species
- *planted between the 1930 and 1940 on sandy siliceous soils*
- *grows in almost all the country ≤ 1200 meters elevation,*
- Most forests are fairly open and even-aged
- *Area of Pinus pinea in Lebanon: 7 943 ha*
- *The Most dense: the lower mountains around Beirut and the Jezzine area (Southern Lebanon)*

In Bkassine –Jezzine : The larget Stone Pine Forest in the Middle East →220 ha & 120 000 trees

They are the most abundant coniferous forest in Mount Lebanon:

18 % of total forest cover

36 %of the coniferous forest cover which is equal to 14 000 hectares.

STONE PINE FORESTS IN LEBANON

- Socio-economic importance for neighboring communities especially the highly valued nut production.
- the middle mountain zone villages depend on the pine nuts production for their main source of income.

- They adapt to a multipurpose management system
- They can be also used for :
  - grazing
  - recreational activities,
  - fuel wood: the harvested undergrowth, thus reducing the fire risk.

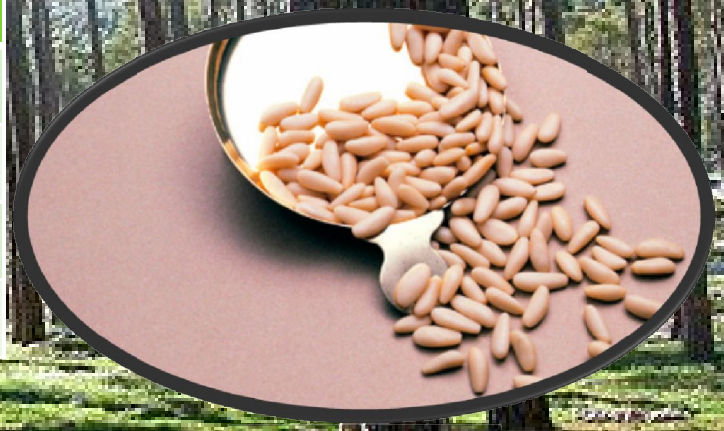
- Clearing the understory for an easier harvest may result in a higher soil erosion risk

According to the FRA 2010	
Above-ground biomass	0.62 million tons
Below-ground biomass	0.22 million tons
Growing Stock	1.518 million m^3

PINE NUTS PRODUCTION

- The Ministry of Agriculture is encouraging nut production through banning the import of pine nuts,
- The pine area used for nut production is 6 277 hectares.

The distribution of Lebanese Pine nut production
80% in Mount Lebanon area
18 % in South Lebanon
1 % in North Lebanon
1 %in Nabatiyeh



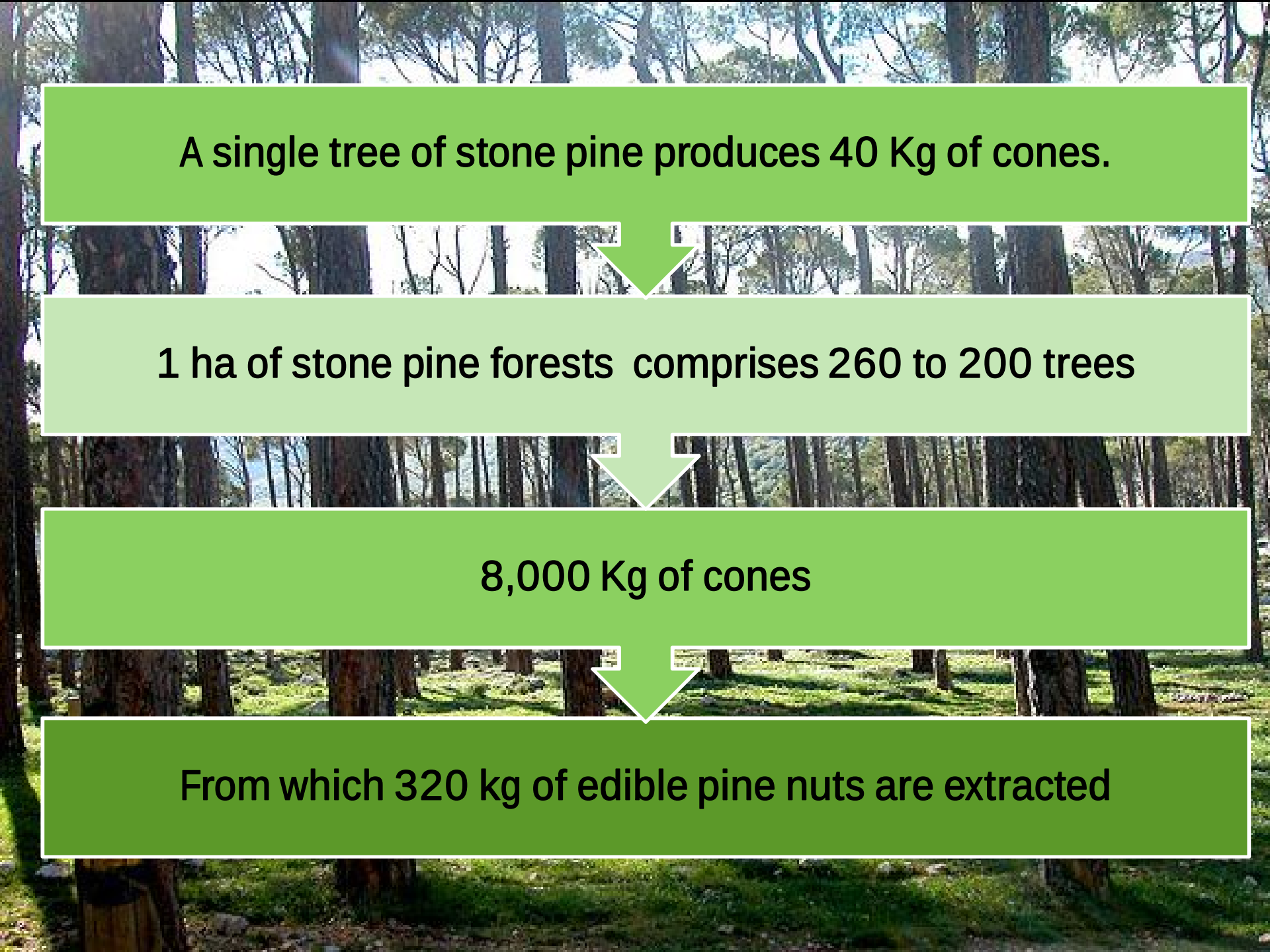
- In the old times, pine production was a family business
- Nowadays, contractors are responsible for the harvesting and the nut processing, and they usually share the income with the owner

Pine nuts production – The Post Harvest Process

- The Pine cones are extracted by hand directly from the tree or from a distance using a pole.
- The cones are collected and laid on the roof tops for sun drying
- The black seeds are later on extracted by hand or with specific machinery to separate the shell from the seed
- The black seeds are then soaked in water overnight, then peeled to get the edible nut

Pine nuts production – The silvicultural practices

- The rotation period for pruning the pine trees is 4 years
  - Year 0 : Pruning
  - Year 1: the forest gives 40 % of its production,
  - Year 2: 60% of its production
  - Year 3: 70% of its production
  - Year 4: 100%
- New stands of *Pinus pinea:* 10% planted with *Pinus brutia* for proper pollination
- The understory cleaning :
  - In old times: Grazing was used
  - Recently: Fire is used


A single tree of stone pine produces 40 Kg of cones.
1 ha of stone pine forests comprises 260 to 200 trees
8,000 Kg of cones
From which 320 kg of edible pine nuts are extracted

- The pruned wood is used for firewood
- The cones shell and the nuts peel are used for heating as well
- The resin is used for medicinal purposes for goats and as a snake repellent

Potential Threats

- **Disease Outbreak**: Acceleration of **insect** outbreaks and **fungi** due to the prohibition of coniferous tree felling: (even in burned stands)
  - *Tomicus spp*. is widely affecting *Pinus pinea*.
- **Fire outbreak** : loss of pine trees and mostly naturally replaced by the original species that used to occupy the land, like oak trees (*Q. calliprinos*, *Q. infectoria*, Olives.).
- **War Oubreak:**
  - the total losses in woods and edible pine nut of a lost *P. pinea* forest are equal to 114,330 US$/ha. (including man labor cost from wood logging and pine nut extraction)

Some Production Numbers....

- Man-labor : 50$/day (= price of 1 kilo of nuts)
  - *"Since 50 years ago the perdium of the worker has been equal to the price of one kilo of pine nuts"*
- *Nut Production in 2005 was 1500 tons worth of 30$ USD/kg*
- One ton of pine nut (white grain) harvesting requires 200 FTE-days.
- Pruning and cleaning the understory of one hectare of *Pinus pinea (260 trees/ha) trees requires an average of 64 FTEdays* every four years
- Stone pine exploitation, 1500t of pine nuts, requires 390560 FTE-days. The total of 401 496 FTE-days/year equivalent of 1,784 man-years FTE.

Culinary use of Pine nuts

- **Pine nuts contribute to the preparation of a variety of Lebanese dishes and sweets:**
- Kebbeh
- Sfiha
- Tajine
- Nammoura
- Sfoof

A PICTURE WORTH OF THOUSAND WORDS